A sample stage 20 rotatable about an axis 21 for mounting a sample 22 is provided. The axis of rotation of the stage is arranged so that the axis passes through the front face 23 of the sample facing the X-ray source. An analyser crystal 30 is arranged on a detector 34. The analyser crystal and detector are both arranged on a detection stage 36 which is mounted to rotate the analyser and detector about an axis that is co-axial with the axis of rotation of the sample stage. The analyser crystal is a high-quality crystal with known diffraction properties that produces little background scattering.

a1

The sample stage and detector stage are independently rotatable. In use, a sample 22 is mounted on the sample stage 20. X-rays 12 are collimated into a beam 24 by the double pinhole collimator and illuminate a small spot on the sample. Scattered X-rays 26 are not collected. Diffracted X-rays 28 are incident on the analyser crystal 30 and diffracted by the analyser crystal 30 onto the detector 34. The detection stage 36 and the sample stage 20 are rotated and the intensity of X-rays reaching the detector is measured as a function of rotation angle.

On page 1 at line 4 of the specification, please insert the following heading:

a2

FIELD OF THE INVENTION

On page 1 at line 6 of the specification, please insert the following heading:

a3 BACKGROUND OF THE INVENTION

On page 3 at line 8 of the specification, please insert the following heading:

a4 SUMMARY OF THE INVENTION

On page 7 at line 10 of the specification, please insert the following heading:

a5 BRIEF DESCRIPTION OF THE DRAWINGS

On page 8 of the specification, prior to line 1, please insert the following heading:

a6 DETAILED DESCRIPTION OF THE INVENTION

IN THE CLAIMS:

Please amend the pending claim(s) as follows, substituting any amended claim(s) for the corresponding pending claim(s):